

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

TAILORED LIGHTING, INC.,

Plaintiff,

04-CV-6435T

v.

**DECISION
and ORDER**

OSRAM SYLVANIA PRODUCTS, INC.,

Defendant.

INTRODUCTION

Plaintiff Tailored Lighting, Inc. ("TLI"), brings this action pursuant to federal patent law, (codified at 35 U.S.C. § 100 et. seq.), claiming that defendant Osram Sylvania Products, Inc., ("Sylvania") has infringed one of TLI's patents. Specifically, TLI contends that Sylvania has infringed Claims 1, 2, 3, 4, 9 and 19 of United States Patent No. 5,666,017 (the "'017 patent"), by manufacturing and selling its SilverStar and Cool Blue automobile headlamps, which replicate certain lighting characteristics in the same manner as is taught in the '017 patent. The '017 patent teaches, in general, the manufacture and use of light bulbs, which emit light waves at wavelengths similar to wavelengths observed in certain daylight conditions. The inventor claims that the light produced by the bulb disclosed in the patent is superior to light emitted from traditional bulbs because the light from the disclosed bulb more closely approximates natural light.

Pursuant to Markman v. Westview Instr., Inc., 517 U.S. 370 (1996) ("Markman"), the parties requested that the court construe

Claim 1 of the '017 patent.¹ Once the claim is construed, the parties may then try the infringement issue to the trier of fact. TLI argues that Claim 1 of the '017 patent should be given a broad interpretation, and should not be limited to only those embodiments of the invention disclosed in the patent. Sylvania urges a limited construction of Claim 1: giving a narrow scope to the terms used in the claim, and limiting the claim to only those embodiments, and its equivalents, disclosed in the patent. Prior to interpreting the claim, a brief descriptive background of the technology at issue and the '017 patent is set forth below.

BACKGROUND

On September 9, 1997, the United States Patent Office issued United States Patent 5,666,017, entitled "Daylight Lamp," which names Kevin P. McGuire ("McGuire") as the inventor, and plaintiff TLI as the assignee. The patent teaches a lamp that "produc[es] a special spectral light distribution which is substantially identical in uniformity to the spectral light distribution of a desired daylight throughout the entire visible light spectrum." See TLI's Br. at 1. Under the method described in the patent, such a lamp generally contains a lamp envelope comprised of an exterior

¹The parties have prepared a Joint Claim Construction Statement filed concurrently with their briefs, summarizing each parties' proposed claim construction, element-by-element, in the order in which each element appears in the claims. The parties' have also outlined their agreements and disagreements in construction of the claim elements for the asserted claims. While TLI asserts that claims 1, 2, 3, 4, 9 and 19 are infringed, for purposes of the present motion, the parties have agreed on a proposed construction for the five asserted dependent claims (claims 2, 3, 4, 9, and 19). Claim 1 of the '017 patent, the only independent claim asserted in the present case, is the only claim containing disputed terms.

surface, a light-producing element substantially centrally disposed within the lamp envelope, and a coating on the surface of the lamp envelope. See id. Typically, the lamp envelope is a glass or "bulb" enclosure and the light-producing element is a metal filament that, when excited by electrical energy, emits radiant energy at least throughout the entire visible spectrum. According to TLI, the coating on the surface of the lamp may be either a reflective or absorptive coating or both, with the light emitted by the filament that is not intended to be transmitted, being either reflected back to the filament or absorbed.

DISCUSSION

I. Standard of Review

In 1996, the United States Supreme Court held in Markman v. Westview Instr., Inc., 517 U.S. 370, 372, that "construction of a patent, including terms of art within its claim, is exclusively within the province of the court." Because the meaning of claim terms is often "the central issue of patent litigation . . ." and because "most aspects of trial hing[e] on this determination . . . a conscientious court will generally endeavor to make this ruling before trial." Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., 911 F.Supp. 76, 79 (E.D.N.Y. 1996) (Rader, J. sitting by designation) (citing Markman v. Westview Instr., Inc., 52 F.3d 967 (Fed.Cir.1995) (internal quotation omitted)).

In determining how the terms of a claim are to be construed, "the court should look first to . . . intrinsic evidence . . . i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (citing Markman, 52 F.3d at 979). "Such intrinsic evidence is the most significant source of legally operative meaning of disputed claim language." Vitronics, 90 F.3d at 1582. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term[,]" and in such circumstances, reliance on extrinsic evidence, such as expert testimony is "improper." Id., at 1583.

In considering the intrinsic evidence, the court looks first to the words of the claims, including the claims not asserted, to define the scope of the patented invention. Id., at 1582. The words in the claim are given their ordinary and customary meaning, unless the patentee chooses to define the words in a specific manner. Id. If the patentee chooses to be his or her own lexicographer, the specified definitions assigned to particular words or terms must be found either in the specification or the file history. Id. Accordingly, it is always necessary to review the specification to determine if any specialized meanings have been given to terms used in the patent. Id. Finally, with respect to intrinsic evidence, the prosecution history of the patent may

often be of "critical significance" in defining claim terms. Id. The prosecution history often contains express representations made by the applicant regarding the scope or limitations of claims, and therefore is a valuable resource in determining meanings of words used in the claims. Id.

II. Claim 1 of the '017 Patent.

Claim 1 of the '017 patent discloses:

A lamp for producing a spectral light distribution substantially identical in uniformity to the spectral light distribution of a desired daylight with a color temperature of from about 3500 to about 10,000 degrees Kelvin throughout the entire visible light spectrum from about 380 to about 780 nanometers, comprising:

(a) an enclosed lamp envelope having an interior surface and an exterior surface;

(b) a light-producing element substantially centrally disposed within said lamp envelope and which, when excited by electrical energy, emits radiant energy throughout the entire visible spectrum with wavelengths from about 200 to about 2,000 nanometers at non-uniform levels of radiant energy across the visible spectrum; and

(c) at least one coating on at least one of said surfaces and having a transmittance level in substantial accordance with the formula

wherein $T(l)$ is the transmission of said envelope coating for said wavelength l from about 380 to about 780 nanometers, $D(l)$ is the radiance of said wavelength for the desired daylight, $S(l)$ is the radiance of said element at said wavelength at normal incidence to said lamp envelope, $S^*(l)$ is the radiance of said element at said wavelength at non-normal incidence to said lamp envelope, and N is the

percentage of visible spectrum radiant energy directed normally towards said exterior surface of said lamp envelope.

U.S. Patent 5,666,017.

III. Construction of the Disputed Claim terms of the '017 Patent²

A. "Substantially identical in uniformity to"

The parties contest the definition of the term "substantially identical in uniformity to" as used in Claim 1. TLI contends that the term "substantially identical in uniformity to" does not need to be construed because it does not limit the claim. See TLI's Br. at 8. However, TLI argues that should the court decide that the preamble is limiting, the term "substantially identical in uniformity to" should be accorded its ordinary and customary meaning. See id. According to TLI, the ordinary and customary meaning of the term "substantially" is "same or very close to." Thorn EMI N. Am. v. Intel Corp., 936 F. Supp. 1186, 1198 (D.Del. 1996). See id.

Sylvania argues that the term "substantially identical" is explicitly defined in the specification of the '017 patent, and therefore, the court should adopt the patent's definition of this term. Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed. Cir. 2005) (In cases where specification explicitly defines how term should be construed, inventor's lexicography governs). See id. According to

²In construing the claims of the '017 patent, I focus on Claim 1, which is the only independent claim in dispute.

Sylvania, there is no support in the specification of the '017 patent for TLI's proposed claim construction that the term "substantially identical" should mean "same or very close to." See id.

The specification of the '017 Patent states, in relevant part that:

As used in this specification, the term **substantially identical** refers to a total light output which, at each of the wavelengths between about 400 and 700 nanometers on a continuum, is within about 30 percent of the D(1) value determined by the aforementioned formula and wherein the combined average of all of said wavelengths is within about 10 percent of the combined D(1) of all of said wavelengths.

See Specification at col. 6 lines 45-51 (emphasis added). I find that because the inventor specifically defined the term "substantially identical" in the specification of the '017 patent, the patent's definition controls this court's interpretation of that term, and mandates that the term "substantially identical in uniformity to" as used in the '017 patent must be construed to require "a total light output which, at each of the wavelengths between about 400 and 700 nanometers on a continuum, is within about 30 percent of the D(1) value [as determined by a specified formula] and wherein the combined average of all of said wavelengths is within about 10 percent of the combined D(1) of all of said wavelengths." See '017 patent at Col. 6, lines 45-51.

B. "the spectral light distribution of a desired daylight"

TLI argues that the term "the spectral light distribution of a desired daylight" should be given its ordinary and customary meaning in the art. See TLI's Br. at 9.³ Specifically, TLI contends that the term "desired" is known in the art as "a selection or reference" and should be accorded its ordinary and customary meaning. See id. Moreover, TLI asserts that the term "daylight" should be construed according to its ordinary and customary meaning. See id. at 11. According to TLI, daylight spectral light distributions have been standardized and are known in the art, which is why it requires no construction. See id.

Sylvania contends that nothing in the '017 patent provides any indication as to how a "desired daylight" may be objectively determined or selected. See Sylvania's Br. at 7. Further, Sylvania argues that the term "desired" is dependent on a particular person's subjective opinion⁴ and when it is used to modify the term "daylight," it results in a purely subjective choice of infinite possibilities. See id. at 8. As a result, Sylvania asserts that the

³TLI contends that the term "spectral" has its ordinary meaning of, relating to, or made by a spectrum. Further, the term "distribution" has its ordinary meaning as the frequency of an occurrence over a range. In addition, the term "light" has its ordinary meaning as "any radiation capable of causing a visual sensation directly." See Id.

⁴TLI contends that Sylvania's argument that the term "desired" is a subjective term, is without merit and disingenuous. See TLI's Br. at 10. According to TLI, a search of U.S. Patents and U.S. Patent Applications published by the U.S. Patent and Trademark Office filed on or after January 1, 2005 shows that almost 15,000 patents and patent applications contain the term "desired" in at least one claim. See id. Further, Sylvania is listed as an assignee on more than a dozen patents and patent applications containing the word "desired" in at least one claim. See id.

term "desired daylight" cannot be construed, and is thus indefinite. See id.

The '017 patent indicates that "daylight" is a well understood term. In addition, the term "daylight" is widely known, standardized and well documented in the industry. For instance, Sylvania's own U.S. Patent Application No. 2006/0187671 supports the argument that the term "daylight" is known in the art and requires no construction. In that application, Sylvania states "...white light may be generally defined as the central and generally ellipsoidal region of the [Commission Internationale de l'Eclairage] chromaticity diagram (also known as the Kelly Chart) ... some common white color points include daylight...." See TLI's Br. at 11. Indeed, the patent itself recognizes that the term "daylight" may encompass a wide range of light spectra. Similarly, in this case, "a desired daylight" is simply a spectra chosen by the maker of the bulb. Thus, the term "the spectral light distribution of a desired daylight" is not indefinite and does not limit the claim.

C. "throughout the entire visible spectrum from about 380 to about 780 nonometers, comprising"

TLI contends that the term "throughout the entire visible spectrum from about 380 to about 780 nonometers" should be accorded its ordinary and customary meaning in the art. See TLI's Br. at 12. According to TLI, the term "visible spectrum" is known as the portion of the electromagnetic spectrum that is visible to and can

be detected by the human eye. See id. Accordingly, one skilled in the art understands that there are no exact bounds to the visible spectrum, and that a typical human eye will respond to wavelengths from about 380 to 780 nanometers. See id.

Sylvania argues that the claim term "throughout the entire visible spectrum from about 380 to about 780 nonometers" modifies the claim element "substantially identical in uniformity to" which as explained above, is explicitly defined in the specification. See Sylvania's Br. at 9. Sylvania further asserts that the "visible spectrum" range outlined in this claim ("from about 380 to about 780 nanometers") is in conflict with the range set forth in the specification for the defined term "substantially identical," which states "between about 400 and 700 nanometers"). See id. Sylvania contends this conflict creates an inherent inconsistency as to what defines the "visible spectrum." Accordingly, Sylvania argues that due to this inherent inconsistency, the claim element cannot be construed and is indefinite. Datamize v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005) (claims that are "insolubly ambiguous" are indefinite). See id.

I find, however, that TLI's proposed construction of the term "visible spectrum" is not inherently inconsistent with the term "substantially identical in uniformity to." The reference in the '017 Patent to the range from 400 to 700 nanometers does not refer to the visible light spectrum, but instead refers to artificial

light emitted from a bulb that can (if within specified values) be considered substantially identical to natural daylight. As stated above, the patentee simply chose to define "substantially identical" light as light that falls within 30 percent of the D(1) value of a reference daylight within the 400 to 700 nanometer range, provided that the combined average of all wavelengths within the 400 to 700 range is within 10 percent of the D(1) value of the chosen reference daylight. That the patentee chose to focus on only a part of the visible light spectrum (400 to 700 nanometers) rather than the "entire" visible spectrum (380 to 780 nanometers) in determining whether or not artificial light from the disclosed bulb is "substantially identical" to natural daylight is a choice that the patentee was free to make, and does not suggest that the term "visible light spectrum" should be afforded any construction other than its known meaning within the art. Accordingly, I find that the term "visible light spectrum" refers to the light spectrum between 380 and 780 nanometers.

D. "an enclosed lamp envelope"

TLI asserts that the term "an enclosed lamp envelope" simply means an enclosure and should be given its ordinary and customary meaning. See TLI's Br. at 13. Sylvania, however, contends that the term envelope should be construed to require that the envelope be either elliptical or spherical in shape. In support of this construction, Sylvania argues that the only envelope shapes

disclosed in the '017 patent are spherical or elliptical, and therefore the patent should be limited to those restrictions. See Sylvania's Br. at 11.

The description of the preferred embodiment or the invention provides that the "lamp envelope ... **preferably** has a substantially **elliptical** shape." '017 patent, col. 18, lines 57-59. (Emphasis added). The description of the preferred embodiment further states that "[a]s will be apparent to those skilled in the art, **regardless of whether** the **elliptical or spherical** shape is **used**, the geometry of [the] lamp envelope ... provides the maximum amount of reflectance back to [the] light-emitting element ... and thus provides more heat to [the] element ... to, in turn, generate more light." '017 patent col. 19 lines 19-25. (Emphasis added). Notably, the specification simply indicates a preference for an elliptical or spherical shaped lamp envelope, but does not specifically limit the envelope to those two shapes. The specification describes only one or two preferred or potential embodiments of the patented invention. See Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 15 F.3d 1281, 1293 (Fed. Cir. 2000) (indicating that the Federal Circuit Court of Appeals "consistently declines to construe claim terms according to the preferred embodiment.") Unless there is limiting language in the specification suggesting that the patented invention would not work absent a sphere or ellipses, or that the sphere or ellipses is an improvement over the prior art

that warranted issuance of the patent, then any "enclosure," with its broadest ordinary meaning supported by the specification, is acceptable. Because the specification and prosecution history of the '017 patent do not exclude or limit the shape of the lamp envelope in any way, I find that the term "an enclosed lamp envelope" means "an enclosure."

E. "substantially centrally disposed within said lamp envelope"

TLI contends that the word "substantially" must be considered by the court in construing the meaning of "centrally disposed" since "substantially" modifies the disputed claim language. See TLI Br. at 14. Moreover, TLI argues that the term "substantially" is a descriptive term commonly used in patent claims to "avoid a strict numerical boundary to the specified parameter." Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1367 (Fed. Cir. 2001). See id. As a result, TLI asserts that in the context of Claim 1, the word "substantially" with regard to the center of the lamp envelope should be construed as "at or near." See id. Further, TLI claims that Sylvania's reading of the limitation of "substantially centrally disposed within said lamp envelope" to mean that the "light-emitting element must be oriented along the main axis of the lamp envelope and may not be offset from the main axis of the lamp envelope by more than 5%" instead of "at or near the center of the enclosure" is unduly restrictive, and violates the claim construction rule of claim differentiation by rendering certain

terms of the patent superfluous. See TLI's Br. at 16-17. In support of this argument, TLI points out that Sylvania's proposed claim construction impermissibly reads into independent Claim 1 limitations that are explicitly present in dependent Claim 7,⁵ but not present, explicitly or otherwise, in Claim 1. See id. at 17. TLI argues that Claim 7, which necessarily includes all of the same limitations as Claim 1, requires that, in addition to being "substantially centrally disposed," the filament is to be positioned such that each point on the filament is "about 0.95 to about 1.05 times the distance of the envelope from the axis." See id. Accordingly, imposing such a construction on Claim 1 would render superfluous the language in Claim 7. See id.

Sylvania focuses on Figure 19 of the patent and argues that the specification, together with the explicit measurement standards provided by the patentee, demonstrate that the patentee chose to explicitly define the standard by which the term "substantial" is measured. See Sylvania's Br. at 13-14. As an initial matter, the patent drawings, including Figure 19, only depict the preferred embodiment. See Prima Tek II, L.L.C. v. Polypap, S.A.R.L., 318 F.3d 1143, 1148 (Fed. Cir. 2003) ("[T]he mere fact that the patent drawings depict a particular embodiment of the patent does not

⁵Claim 7 states:

A lamp according to claim 1, wherein the envelope is substantially elliptical in cross section with an axis of rotation and having two focal points along the axis, **the element being centrally disposed within the envelope in all directions along the [vertical] axis and each point on the element being from about 0.95 to about 1.05 times the distance of the envelope from the axis** and having a length not exceeding the distance between the focal points. See '017 Patent, Claim 7 (emphasis added).

operate to limit the claims to that specific configuration"); Gart v. Logitech, Inc., 254 F.3d 1334, 1342 (Fed. Cir. 2001); see also Interactive Gift Exp., Inc. v. Compuserve Inc., 256 F.3d 1323, 1339 (Fed. Cir. 2001). As discussed above, the preferred embodiment is not the only embodiment of the patented invention, but rather depicts the preferred method of practicing the invention. Absent language in the specification suggesting that the patented invention would not work absent the light-emitting element being within 5 percent of the center of the enclosure, or that such a requirement is an improvement over the prior art, then the scope of the claim is not limited to the preferred embodiments described in the specification. See Fuji Photo Film Co., Ltd v. ITC, 386 F.3d 1095, 1106 (Fed. Cir. 2004).

Further, Sylvania's proposed claim construction impermissibly reads into independent Claim 1 limitations that are explicitly present in dependent Claim 7, but not present (explicitly or otherwise) in Claim 1. Construing Claim 1 in the way Sylvania proposes, renders Claim 7 superfluous. Broadly stated, the doctrine of claim differentiation "create[s] a presumption that each claim in a patent has a different scope." See Comark Comm., Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998); see also Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1326 (Fed. Cir. 2003) (holding that "when a patent claim 'does not contain a certain limitation and another claim does, that limitation cannot

be read into the former claim') (citation omitted); Tandon Corp. v. U.S. Int'l Trade Commission, 831 F.2d 1017, 1024 (Fed. Cir. 1987) (there is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims). Accordingly, the doctrine of claim differentiation is applicable and mandates the adoption of the claim construction urged by TLI.

F. "and which, when excited by electrical energy, emits radiant energy throughout the entire visible spectrum with wavelengths from about 200 to about 2,000 nanometers"

TLI argues that the term "and which, when excited by electrical energy, emits radiant energy throughout the entire visible spectrum with wavelengths from about 200 to about 2,000 nanometers" means "an electrical current causes the element itself to emit electromagnetic radiation between approximately 200 to 2,000 nanometers, including the entire portion visible to the human eye." See TLI's Br. at 18. Moreover, TLI contends that this interpretation is supported by the specification. See id. Sylvania contends that this claim element adds further inconsistency to the claim because the term "visible spectrum" has been previously inconsistently defined as being "from about 380 to about 780 nanometers" and as being "between about 400 and 700 nanometers." See Sylvania's Br. at 16. Accordingly, Sylvania asserts that TLI is effectively rewriting the claim in an attempt to avoid this inherent conflict. See id.

As explained above, I found that TLI's proposed construction of the term "visible spectrum" is not inconsistent on grounds that the visible light spectrum is understood in the art to include light emitted in the 380 to 780 nanometer range. The patent's definition of "substantially identical" light is not inconsistent with that definition, and rather, merely specifies that for purposes of determining whether or not light is "substantially identical" to daylight, only light within the 400 to 700 range need be considered. Similarly, the claim term "entire visible spectrum with wavelengths from about 200 to about 2,000 nanometers" is not inconsistent with the previously defined terms.

The operation of a lamp is well known in the art. When electrical current is passed through a light-emitting element, the element is heated to an extremely high temperature. As the element is heated, it releases thermally equilibrated photons, which have a black body spectrum called radiant energy. This spectrum is *continuous*, typically peaking in the visible light range but also containing significant energy in the near-infrared (about 780 nanometers to 1 mm) and ultraviolet wavelengths (about 200 to 280 nanometers). As explained previously, the visible spectrum *includes* wavelengths from about 380 to 780 nanometers and is obviously included in a range from ultraviolet through infrared. Such an interpretation is supported by the specification. See '017 patent col 1, lines 63-67; col. 20, lines 11-16; col. 22, lines 41-43.

Thus, if a light emits wavelengths from about 200 to 2,000 nanometers, by definition, it includes light in the range of wavelengths from about 380 to 780 nanometers.

G. "at non-uniform levels of radiant energy across the visible spectrum; and"

I find that the term "non-uniform" has its usual and ordinary meaning. Vitronics, 90 F.3d at 1582 (words in claim are given their ordinary and customary meaning, unless patentee chooses to define words in specific manner). "Radiant energy" is described above. See Opinion at 13. Further, it is known in the art that the energy levels of filaments for the wavelengths across the visible spectrum⁶ are not all the same. Thus, the term "at non-uniform levels of radiant energy across the visible spectrum" is known in the art and the industry⁷ as "not all the same" and thus, TLI's construction is accurate.

H. "at least one coating"

The term "at least one coating" appears clear and unambiguous on its face and should be construed as "a coating of one or more layers." There is nothing in the specification that limits the patent to a "coating which reflects electromagnetic radiation (specifically, infrared radiation emitted by the light-emitting

⁶The term "visible spectrum" has been defined above. See Opinion at 8-9.

⁷Sylvania's website supports the interpretation and states:

All incandescent light is produced by heating a solid object – the filament – until it radiates light. In a sense, this is the way light is produced by the sun [this] does not mean, however, that they render all colors in an identical manner.

See TLI's Br. at 19.

element) back to the light-emitting element.” See Sylvania’s Br. at 18. The infrared reflective coating discussed by Sylvania is merely a preferred embodiment but is clearly not the only embodiment for the patented invention. As explained, unless the preferred embodiment is the exclusive invention disclosed by the patent, the patented invention is not limited to the preferred embodiment. Unless there is limiting language in the specification suggesting that the patented invention would not work with more than one coating on the envelope, or that such a requirement is an improvement over the prior art, then the scope of the claim is not limited to the preferred embodiments described in the specification. See Fuji Photo, 386 F.3d at 1106.

Further, the doctrine of claim differentiation, once again, does not support Sylvania’s proposed construction. See Comark, 156 F.3d at 1187 (claim differentiation “create[s] a presumption that each claim in a patent has a different scope”). Here, Sylvania’s proposed claim construction impermissibly reads into independent Claim 1 limitations that are explicitly present in dependent Claims 8, 10 and 11 but not present (explicitly or otherwise) in Claim 1. Accordingly, imposing such a construction on Claim 1 would render superfluous the language in Claims 8, 10 and 11.

For example, Claim 8 of the ‘017 Patent states:

A lamp according to claim 1, and further comprising a second coating on said envelope, **one of said coatings comprising an infrared coating on one of the surfaces of the envelope**, and the other coating including an

ultraviolet reflecting layer on the other surface of the envelope.

See '017 patent, Claim 8. In addition to having all of the same limitations as Claim 1, Claim 8 requires that in addition to having "one or more coating" as required by Claim 1, the coating is an *infrared* coating. This is the exact same limitation Sylvania wants to read into Claim 1. Thus, I find that the doctrine of claim differentiation is applicable and imposing such as a construction on Claim 1 would render Claims 8, 10 and 11 superfluous.

I. "on at least one of said surfaces"

TLI argues that the term "on at least one of said surfaces" means "on at least a portion of either or both the inside and outside enclosure surfaces" and this definition comports with the ordinary and customary meaning of the terms. See TLI's Br. at 21. The dispute concerning this issue is limited since Sylvania contends that the specification of the '017 patent states that the coating "'preferably extends over at least about 90 percent of the exterior surface of the lamp envelope.'" ... col. 19, lns. 36-37." See Sylvania's Br. at 20. Accordingly, Sylvania asserts TLI's proposal to include the phrase "at least a portion of" should not be accepted. However, to the extent that a qualifier is included, it must be quantified to be at least about 90 percent covered. Id.

Both parties agree, for purposes of the present litigation that the definition of a lamp envelope is one "having an interior surface and an exterior surface[.]" See Joint Statement at p. 3.

Under the plain meanings of these terms, I find that the claim term "said surfaces" from the phrase "on at least one of said surfaces" refers to the inner surface and outer surface of the lamp envelope requiring no specific limitation. There is no specific limitation in either the claim or the specification directing that the coating must be disposed on at least one entire surface. See refs. 620, 642, 644, 646, 648 of Figure 20 of U.S. Patent 5,666,017.

**J. "and having a transmittance level in substantial accordance with the formula
 $T(1)=[D(1)-[S*(1)+(1-N)]]/[S(1)+N]$ "**

TLI contends that when construing terms according to their ordinary and customary meaning, the above phrase means "the coating transmits that portion of the element-emitted electromagnetic radiation that substantially satisfies the stated formula." See TLI's Br. at 22. TLI explains that the light-emitting element of the lamp emits electromagnetic radiation. See id. This radiation impinges the "lamp envelope" with its "at least one coating," and some of the radiation passes through the envelope and coating. See id. Accordingly, the coating has a transmittance level.⁸ Claim 1, TLI asserts, requires this transmittance level to be only in "substantial accordance" with the above formula.⁹ Further, TLI argues that the term "accordance" should be accorded its ordinary

⁸ According to TLI, the term "transmittance" is well known in the art and is defined as the fraction of radiant energy that having entered a layer of absorbing matter reaches its farthest boundary. Id.

⁹ TLI contends that the term "substantial" is defined as "the same or very close to." As discussed on page 6, this Court has rejected this definition of "substantial."

meaning. Thus, TLI contends that the claim states that the coating transmits a portion of the element-emitted electromagnetic radiation that substantially satisfies the above formula. See id.

Sylvania argues that the word "substantial" is a word of degree and TLI's use of the word to modify the term "accordance" implies that the transmittance level of the coating need not be exactly in conformity with the formula recited in Claim 1 of the '017 patent. See Sylvania's Br. at 21. However, Sylvania contends that the specification of the '017 patent provides no standard for measuring the level of "substantial accordance" necessary to fall within the scope of the claim. See id. Moreover, Sylvania urges that using basic mathematical principles, a formula is either satisfied or not satisfied, that is, the terms on opposite sides of the equation are either equal or not equal. See id.

I find that the term "and having and having a transmittance level in substantial accordance with the formula $T(l) = [D(l) - [S^*(l) + (1-N)]] / [S(l) + N]$ " be given its ordinary meaning, and that the term requires that coating of the bulb transmit light energy that is in substantial accordance with the stated formula. The mathematical formula recited in the claim discloses a standard for transmittance that the bulb seeks to attain. The patent does not require that the light emitted from the bulb conform exactly to that standard, but instead, teaches that the light transmitted will

be adequate as long as it is in "substantial accordance" with the standard defined by the formula.

K. "wherein $T(l)$ is the transmission of said envelope coating for said wavelength l from about 380 to about 780 nanometers"

Consistent with my rulings above, and as supported by the specification of the '017 Patent and publications by those skilled in the art, the variable " $T(l)$ " should be construed to mean that it represents that portion of the electromagnetic radiation at each wavelength " l " that is transmitted through the coating. See '017 patent col. 2, lines 27-28; col. 3, lines 37-38; col. 21, lines 7-8; and col. 22, lines 44-45.

L. "D(l) is the radiance of said wavelength for the desired daylight"

The term " $D(l)$ is the radiance of said wavelength for the desired daylight" should be defined as the measure of the electromagnetic radiation for the same wavelength " l " in the selected daylight, since "desired daylight" has been construed to mean a spectra chosen by the maker of the bulb. This is consistent with my rulings above and is supported by the specification and publications by those skilled in the art. See '017 patent col. 2, lines 28-29; col. 21, lines 8-9; and col. 22, lines 51-55.

M. "S(l) is the radiance of said element at said wavelength at normal incidence to said lamp envelope"

Consistent with my rulings above and as supported by the specification, and publications by those skilled in the art, the

term "S(l) is the radiance of said element at said wavelength at normal incidence to said lamp envelope" means the measurement of the electromagnetic radiation emitted by the element at the same wavelength "l" and in the direction of a target area intended to be illuminated." See '017 patent col. 2, lines 29-30; col. 19, lines 10-16; col. 21, lines 10-11; and col. 22, lines 19-23.

N. "S*(l) is the radiance of said element at said wavelength at non-normal incidence to said lamp envelope"

The term "S*(l) is the radiance of said element at said wavelength at non-normal incidence to said lamp envelope" should be defined as the measurement of the electromagnetic radiation at the same wavelength "l" emitted by the element not in the direction of the targeted area, but still illuminating the target. This is consistent with my rulings above and is supported by the specification and including publications by those skilled in the art. See '017 patent col. 2, lines 31-32; col. 19, lines 10-16; and col. 21, lines 11-13 and col. 22, lines 19-23.

O. "and N is the percentage of visible spectrum radiant energy directed normally towards said exterior surface of said lamp envelope"

The phrase "N is the percentage of visible spectrum radiant energy directed normally towards said exterior surface of said lamp envelope" is construed to mean that "N" represents a percentage of electromagnetic radiation of the visible spectrum (which is from about 380 nanometers to 780 nanometers) emitted by the light-emitting element in the direction of the area intended to be

illuminated. In effect the variable "N" is the light emitted in the exterior surface of the lamp envelope, which includes the range that the majority of the human population can perceive visually.

CONCLUSION

Based on the language of the '017 patent, including the claims and specifications, I construe the disputed terms of Claim 1 of the '017 patent as set forth above.

ALL OF THE ABOVE IS SO ORDERED.

s/Michael A. Telesca
MICHAEL A. TELESCA
United States District Judge

Dated: Rochester, New York
September 24, 2007